



CERTIFICATIONS AND APPROVALS

Date:	4-Sep-19
Section:	D
Review:	01

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CERTIFICATE

According to "Certifieringsbestämmelser Systemcertifiering"
Svensk Brand- och Säkerhetscertifiering AB, Tegeluddsvägen 100, 115 28 Stockholm

No. 15-339

Dafo Brand AB

556079-0957

Dafo Vehicle Fire Protection AB

559147-7897

Has a quality management system that fulfils the requirements of
SS-EN ISO 9001:2015

According to sales, design, manufacturing, installation and maintenance of fire and rescue equipment, fire suppression systems, fire alarms and other fire protection installations and related training and consultancy

Scope of certification in appendix

Certificate is valid
2018-09-15 until 2021-09-14

Stockholm 2018-07-12



Mårten Wallén
Managing Director

Appendix to certificate no 15-339

Dafo Brand AB

556079-0957

Dafo Vehicle Fire Protection AB

559147-7897

Vindkraftsvägen 8, Stockholm

Quality management systems - Requirements

SS-EN ISO 9001:2015

Certified location:

Vindkraftsvägen 8, Stockholm

External regulations:

SBF 1008 Authorised installation company Fire alarm systems
SBF 1002 Authorised installation company Gaseous extinguishing systems

Stockholm 2018-07-12



Mårten Wallén
Managing Director

CERTIFICATE

According to "Certifieringsbestämmelser Systemcertifiering"
Svensk Brand- och Säkerhetscertifiering AB, Tegelluddsvägen 100, 115 28 Stockholm, Sweden

No. 15-340

Dafo Brand AB

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Dafo Vehicle Fire Protection AB

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Has an environmental management system that fulfils the requirements of

SS-EN ISO 14001:2015

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2018-09-15 until 2021-09-14

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Mårten Wallén
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Environmental management systems- Requirements

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Certified location:

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SBF 1008 Authorised installation company Fire alarm systems

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Stockholm 2018-07-12



Mårten Wallén
Managing Director



National Fire Protection Association

The Leading Information and Knowledge Resource
on Fire, Electrical, and Related Hazards

NATIONAL FIRE PROTECTION ASSOCIATION

BE IT KNOWN THAT NFPA® RECOGNIZES

DAFO US INC

as a Member in Good Standing and is Entitled to all the Rights,
Honors and Privileges of Membership.



In witness thereof, the Seal of this Association
and the signature of its duly appointed officer is
affixed to this certificate.

February 2, 2017

Date of Issue

Jim Pauley
Jim Pauley, President

ML Subscriber No.:	100043-176
Applicant Subscriber No.:	602426-002
Agreement No.:	5000343224
(For Internal UL Use Only)	

MULTIPLE LISTING, RECOGNITION, VERIFICATION AND CLASSIFICATION DUAL AUTHORIZATION FORM

This form is incorporated by reference into the MULTIPLE LISTING, RECOGNITION, VERIFICATION AND CLASSIFICATION SERVICE AGREEMENT (the "Agreement") signed by the Multiple Listee and UL and is an integral part of the Agreement. This Multiple Listing, Recognition, Verification and Classification Dual Authorization Form appoints and defines the scope of authorization of the Authorized Multiple Listing Manager. The Authorized Multiple Listing Manager shall be authorized to make Multiple Listing requests according to the Scope of Authority mutually agreed to by the Applicant and Multiple Listee indicated below.

The Applicant hereby requests that UL permit the use of the Mark on certain Basic Products bearing the Multiple Listee's name instead of the Applicant's designated name, according to the terms of this Agreement. The Applicant and Multiple Listee agree that all requests pertaining to the UL Multiple Listing Files covered by this Dual Authorization Form (Multiple Listing requests) will be submitted to UL by the Authorized Multiple Listing Manager identified below. Both parties also agree that either party can withdraw this authorization at any time by sending written notice to UL and the other party.

The parties have designated only one of the parties to serve as the Authorized Multiple Listing Manager. If the Authorized Multiple Listing Manager is a company other than the Multiple Listee or Applicant, that company must be an Authorized Agent for either the Multiple Listee or the Applicant. To be considered an "Authorized Agent", a party must have an appropriate L-37 Agreement on file with UL. Authorized Agents are not permitted to sign this Dual Authorization Form on behalf of the Applicant to appoint the Authorized Agent as the Authorized Multiple Listing Manager.

THE PARTIES ACKNOWLEDGE AND UNDERSTAND THAT THIS AUTHORIZATION CAN GRANT SIGNIFICANT AUTHORITY TO THE AUTHORIZED MULTIPLE LISTING MANAGER. UL WILL NOT BE RESPONSIBLE IF THE ACTIONS OR DECISIONS OF THE AUTHORIZED MULTIPLE LISTING MANAGER ARE CONTRARY TO THE DESIRES OF ANY PARTY. The decisions of the Authorized Multiple Listing Manager shall be the sole responsibility of the Multiple Listee and the Applicant.

The Authorized Multiple Listing Manager shall inform UL in writing of the Basic Product by name of Applicant, name of product(s), and identifying catalog, model or other product designation, and specify the Multiple Listee's company name, the name of the product(s), and identifying catalog, model or other product designations for which the Service is desired.

SCOPE OF AUTHORIZATION OF AUTHORIZED MULTIPLE LISTING MANAGER:

The scope of authorization granted to the Authorized Multiple Listing Manager by the Applicant and Multiple Listee is indicated below:

Option 1. The Applicant and Multiple Listee agree that the Authorized Multiple Listing Manager may submit Multiple Listing requests pertaining to any of the Applicant's UL Files.

OR

Option 2. The Applicant and Multiple Listee agree that the Authorized Multiple Listing Manager may only submit Multiple Listing requests pertaining to the Applicant's following UL Files: _____

This authorization is limited to the parties and information described within this form. It has no bearing on any other relationships the Multiple Listee or the Applicant may have with other companies. Requests from the Authorized Multiple Listing Manager will be accepted by UL with the understanding that both Applicant and Multiple Listee are aware and agree to all requests

APPOINTMENT OF AUTHORIZED MULTIPLE LISTING MANAGER

The Multiple Listee and Applicant have selected the check-marked party as their Authorized Multiple Listing Manager:

Authorized Multiple Listing Manager

Applicant's Legal Company Name and Address:

Company Name: PROTECTOWIRE CO INC
Address: 40 GRISSOM RD PLYMOUTH MA 02360 United States
Contact: Jim Goggin Telephone: +1 (781) 826-3878
Fax: _____ E-Mail: jgoggin@protectowire.com

Authorized Multiple Listing Manager

Multiple Listee's Legal Company Name and Address:

Company Name: DAFO BRAND AB
Address: VINGAKERSV 71 :KATRINEHOLM, SE-64151, SE
Contact: Per Kindwall Telephone: _____
Fax: _____ E-Mail: per.kindwall@dafo.se

Authorized Multiple Listing Manager

Agent's Legal Company Name and Address:

Company Name: _____
Address: _____
Contact: _____ Telephone: _____
Fax: _____ E-Mail: _____

The Applicant and Multiple Listee represent and warrant that all information and data provided to UL by Applicant, Multiple Listee and/or the Authorized Multiple Listing Manager or on its behalf are complete and accurate and that UL may rely thereon when providing Services. Applicant and Multiple Listee agree that UL may share Applicant's information and Multiple Listee's information with its affiliates, subcontractors, or others as necessary to perform the requested Services or when in the interests of public safety. Applicant and Multiple Listee agree to indemnify, defend and hold UL, its successors and assigns, trustees, members, officers, agents and employees harmless from and against all damages, claims, suits, losses, penalties, judgments, costs, fines, liabilities or expenses of whatever nature (including reasonable attorney's fees of counsel of UL's choosing), arising from Applicant and Multiple Listee acts or omissions in the performance of the terms of this Agreement, including any actual or alleged personal injury, death, economic loss or property damage, or consequential loss or damages known to UL, without regard to the acts or omissions or negligence of any party or the cause or causes of the occurrence. The parties hereby agree to this allocation of risk.

Limitation of Liability/Allocation of Risk. UL's sole liability to the Multiple Listee and the Applicant arising from this Agreement or the Services shall be limited to the amount of the fees paid for the Services giving rise to the liability, except in the case of a finding of gross negligence or willful misconduct by UL, as determined by a court of competent jurisdiction. No party, including UL, shall be liable to any other party for any consequential damages (including loss of use and profit) incurred by that party regardless of the cause of the loss or whether the parties were aware of the possibility of such a loss.

THE UNDERSIGNED REPRESENT AND WARRANT THAT THEY ARE AUTHORIZED TO EXECUTE THIS AUTHORIZATION FORM ON BEHALF OF APPLICANT OR THE MULTIPLE LISTEE, AS APPLICABLE.

Authorized Applicant
Signature: [Signature]
Name: Jim Goggin
Date: 9/4/2009

Authorized Multiple Listee
Signature: [Signature]
Name: Per Kindwall
Date: Sept 4th 2009

Electrical Signaling

Electrical protective signaling systems are configurations of components used to produce alarm signals indicative of fire, smoke, sprinkler waterflow or other emergency and to produce supervisory signals indicative of conditions needing attention with respect to protection equipment or watch service. System configurations are classified according to where and how the signals are received. The categories are commonly designated as local, municipal, remote station, proprietary, emergency voice/alarm communication, emergency communication, and central station. Auxiliary systems are either local or proprietary systems interconnected with a municipal system.

This category presents the major system component categories and the integrated system configurations. The selection of components to form a hybrid system should be made only by those skilled in system design. Also, the suitability of any system application should be judged on the basis of the hazard(s) being protected.

Alarm Signal Initiating Devices

Alarm signals are initiated either automatically or manually. Automatic detectors respond to changes in characteristic phenomena associated with fire or other emergency conditions.

Fire Detection, Heat-Actuated

Heat sensitive devices may be either "spot" or "line" type and operate at a fixed temperature or on a rapid increase in temperature (rate-of-rise). Some detectors combine the fixed and rate sensitive principles.

The spacing guides listed are indicative of each detector's relative sensitivity and, in each case, the spacing guide is the maximum recommended separation between detectors for smooth-ceiling installations. For a given temperature rating, a fixed-temperature detector which has a 30 ft (9 m) listing and one which has a 15 ft (5 m) listing will both respond at approximately the same time to a geometrically growing fire if each is installed at its listed spacing. FM Approved rate-of-rise detectors all have 30 ft (9 m) listed spacings, the maximum separation recommended by FM Approvals.

Installation of heat detectors at less than maximum spacing is necessary: to achieve earlier response; to compensate for ceiling obstructions such as beams and joists; and to compensate for ceiling heights greater than 15 ft (5 m). Proper location and use of heat detectors involves consideration of ceiling construction, the location of partitions, the maximum normal room temperature, heat produced by the occupancy, and whether detector function is to warn occupants or to automatically actuate protection equipment. Refer to Standard 72-1993 of the National Fire Protection Association and design specifications published by jurisdictional authorities, as appropriate.

Linear Detection Series

The Dafo Linear Detection wire p/n 55-3253-19 is a fixed temperature heat-sensitive cable with an extra high rated operating temperature of 356°F (180°C) which is intended for proximity detection only and is not intended for area coverage. The Dafo Linear Detection wire p/n 55-3253-19 is rated for 30 V ac, 42 V dc.

Company Name:	Dafo Brand AB
Company Address:	Box 683, SE-135 26 Tyresso, Sweden
Company Website:	http://dafo.se
New/Updated Product Listing:	No
Listing Country:	Sweden
Certification Type:	FM Approved

Customer: 129111-1
Subject: Examination for Possible FM Approval of the Client's
Heavy Duty Mobile Equipment Protection System
– Status Report
Project: 3057785



FM Approvals
1151 Boston-Providence Turnpike
PO Box 9102, Norwood MA 02062 USA
T:781 762 4300 F:781 762 9375
www.FMApprovals.com

31 October 2016

Mr. Anders Gulliksson
Dafo Brand AB
PO Box 683
SE-13526 Tyresso
Sweden

Customer: 129111-1
Subject: Examination for Possible FM Approval of the Client's Heavy Duty Mobile
Equipment Protection System
Project: 3057785

Dear Mr. Gulliksson:

Per your Mr. William Lord's request I, am pleased to report that fire extinguishment testing has been successfully completed for the subject project, per Sections 4.1 and 4.2 of FM Approval Standard 5970 – Heavy Duty Mobile Equipment Protection Systems, dated August 2015.

This is a significant step in the Approvals process, which remains incomplete pending successful conclusion of various component tests and other related evaluations.

Until this examination is completed, the formal Approval Report is issued, and your systems are listed in the FM Approval Guide, an online publication, you are not authorized to claim that your products are FM Approved nor to display the FM Approval Mark.

Please feel free to use this letter as documentation to interested third parties of the present status of this examination.

If you have any questions regarding the above proposal please feel free to contact me at +1 (1)781 255 4723 or Armand.Brandao@FMApprovals.com.

Very truly yours,

A handwritten signature in cursive script that reads "Brandao".

Armand V. Brandao, P.E.
Senior Engineering Specialist, Electrical
+1 781 255 4723
Armand.Brandao@FMApprovals.com

СЕРТИФИКАТ СООТВЕТСТВИЯ

(обязательная сертификация)

№ С-SE.ПБ97.В.00782

№ 0017279

ЗАЯВИТЕЛЬ

Dafo Brand Ab.

Адрес: Box 683, 135 26 Tyreso, Stockholm, Sweden.

Телефон: +46 8 506 405 00, факс: +46 8 506 405 99.

ИЗГОТОВИТЕЛЬ

Dafo Brand Ab.

Адрес: Box 683, 135 26 Tyreso, Stockholm, Sweden, производство по адресу: 163 53 Spånga, Lunda Industriområde, Fagerstagatan 58, Stockholm, Sweden.

Телефон: +46 8 506 405 00, факс: +46 8 506 405 99.

ОРГАН ПО СЕРТИФИКАЦИИ

ФГБОУ ВО «Академия Государственной противопожарной службы Министерства Российской Федерации по делам гражданской обороны, чрезвычайным ситуациям и ликвидации последствий стихийных бедствий».

Адрес: 129366, Россия, г. Москва, ул. Бориса Галушкина, д. 4. ОГРН 1027739451684.

Телефон: +7 (495) 617-27-27 доб. 29-33, Факс: +7 (495) 617-27-29. E-mail: agps-oc@mail.ru.

рег. № RA.RU.11ПБ97 от 01.07.2015 г. Федеральная служба по аккредитации.

ПОДТВЕРЖДАЕТ, ЧТО ПРОДУКЦИЯ

Извещатель пожарный тепловой линейный ИП-135-1-Н

модели P/N55-3253-19, выпускаемый по технической

документации изготовителя. Серийный выпуск.

код ОК 005 (ОКП):

код ОКПД 2: 26.30.50.121

код ЕКПС:

код ТН ВЭД России: 8537 10 100 0

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ

ТЕХНИЧЕСКОГО РЕГЛАМЕНТА (ТЕХНИЧЕСКИХ РЕГЛАМЕНТОВ)

Технический регламент о требованиях пожарной безопасности (Федеральный закон от 22.07.2008 г. № 123-ФЗ), ГОСТ Р 53325-2012 «Техника пожарная. Технические средства пожарной автоматики. Общие технические требования и методы испытаний».

ПРОВЕДЕННЫЕ ИССЛЕДОВАНИЯ (ИСПЫТАНИЯ) И ИЗМЕРЕНИЯ

Акт о результатах анализа состояния производства сертифицируемой продукции № 3082ТР-2017 от 31.05.2017 г. (ОС Академия ГПС МЧС России рег. № RA.RU.11ПБ97 от 01.07.2015 г.); Протокол сертификационных испытаний № 131-2017 от 26.06.2017 г. (ИЛ ЛСИСТП Академия ГПС МЧС России рег. № RA.RU.21ПЖ15 от 16.04.2015 г.); Протокол испытаний № 10714-219-1-17/БМ от 16.05.2017 г. (Испытательная лаборатория ООО «Инновационные решения» Аттестат аккредитации № РОСС RU.0001.21AB90), схема сертификации 4с.

ПРЕДСТАВЛЕННЫЕ ДОКУМЕНТЫ

Техническая документация изготовителя, паспорт.

СРОК ДЕЙСТВИЯ СЕРТИФИКАТА СООТВЕТСТВИЯ с 28.06.2017

по 27.06.2022



Руководитель (заместитель руководителя)
органа по сертификации

Эксперт (эксперты)

ПОДПИСЬ

ПОДПИСЬ

Б.Б. Серков
ИНИЦИАЛ, ФАМИЛИЯ

А.М. Алешков
ИНИЦИАЛ, ФАМИЛИЯ

СЕРТИФИКАТ СООТВЕТСТВИЯ

(обязательная сертификация)

№ С-SE.ПБ97.В.00803

ЗАЯВИТЕЛЬ

Dafo Brand Ab.

Адрес: Box 683, 135 26 Tyreso, Stockholm, Sweden.

Телефон: +46 8 506 405 00, факс: +46 8 506 405 99.

№ 0017316

ИЗГОТОВИТЕЛЬ

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Адрес: Box 683, 135 26 Tyreso, Stockholm, Sweden, производство по адресу: 163 53 Spånga, Lunda Industriområde, Fagerstagatan 58, Stockholm, Sweden

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ОРГАН ПО СЕРТИФИКАЦИИ

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рег. № RA.RU.1111697 от 01.07.2015 г., Федеральная служба по аккредитации.

ПОДТВЕРЖДАЕТ, ЧТО ПРОДУКЦИЯ

Прибор приемно-контрольный пожарный и управления установками водяного пожаротушения модели CV-01 в модификациях ВК, СК, ВФ, выпускаемый по технической документации изготовителя. Серийный выпуск.

код ОК 005 (ОКП):

код ОКПД 2: 26.30.50.123

код ЕКПС:

код ТН ВЭД России: 8531 10 300 0

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ

ТЕХНИЧЕСКОГО РЕГЛАМЕНТА (ТЕХНИЧЕСКИХ РЕГЛАМЕНТОВ)

Технический регламент о требованиях пожарной безопасности (Федеральный закон от 22.07.2008 г. № 123-ФЗ), ГОСТ Р 53325-2012 «Техника пожарная. Технические средства пожарной автоматики. Общие технические требования и методы испытаний».

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ПРЕДСТАВЛЕННЫЕ ДОКУМЕНТЫ

Техническая документация изготовителя, паспорт.

СРОК ДЕЙСТВИЯ СЕРТИФИКАТА СООТВЕТСТВИЯ с 18.07.2017 по 27.06.2022

Руководитель (заместитель руководителя) органа по сертификации

Эксперт (эксперты)



Handwritten signature of B.B. Serkov over a horizontal line, with the word 'подпись' written below it.

Б.Б. Серков
инициалы, фамилия

А.М. Алешков
инициалы, фамилия

СЕРТИФИКАТ СООТВЕТСТВИЯ

(обязательная сертификация)

№ С-СЕ.ПБ97.В.00783

№ 0017280

ЗАЯВИТЕЛЬ

Dafo Brand Ab.

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ОРГАН ПО СЕРТИФИКАЦИИ

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рег. № RA.RU.11ПБ97 от 01.07.2015 г. Федеральная служба по аккредитации.

ПОДТВЕРЖДАЕТ, ЧТО ПРОДУКЦИЯ

Модульная установка пожаротушения тонкораспыленной водой типа МУПТВ-5-Г-ВД, МУПТВ-10-Г-ВД, МУПТВ-12,5-Г-ВД, МУПТВ-15-Г-ВД, МУПТВ-20-Г-ВД, МУПТВ-25-Г-ВД (см. Приложения 0015024, 0015025), выпускаемая по технической документации изготовителя.

Серийный выпуск.

код ОК 005 (ОКП):

код ОКПД 2: 28.29.22.190

код ЕКПС:

код ТН ВЭД России: 8424 89 000 9

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ

ТЕХНИЧЕСКОГО РЕГЛАМЕНТА (ТЕХНИЧЕСКИХ РЕГЛАМЕНТОВ)

Технический регламент о требованиях пожарной безопасности (Федеральный закон от 22.07.2008 г. № 123-ФЗ), ГОСТ Р 53288-2009 «Установки водяного и пенного пожаротушения автоматические. Модульные установки пожаротушения тонкораспыленной водой автоматические. Общие технические требования. Методы испытаний».

ПРОВЕДЕННЫЕ ИССЛЕДОВАНИЯ (ИСПЫТАНИЯ) И ИЗМЕРЕНИЯ

Акт о результатах анализа состояния производства сертифицируемой продукции № 3082ТР-2017 от 31.05.2017 г. (ОС Академия ГПС МЧС России рег. № RA.RU.11ПБ97 от 01.07.2015 г.);

Протокол сертификационных испытаний № 132-2017 от 26.06.2017 г. (ИЛ ЛСИСТП Академия ГПС МЧС России рег. № RA.RU.21ПЖ15 от 16.04.2015 г.), схема сертификации 4с.

ПРЕДСТАВЛЕННЫЕ ДОКУМЕНТЫ

Техническая документация изготовителя, паспорт. Декларация о соответствии № RU Д-СН.А301.В.07157 от 28.06.2017 г.

СРОК ДЕЙСТВИЯ СЕРТИФИКАТА СООТВЕТСТВИЯ с 28.06.2017

по 27.06.2022



Руководитель (заместитель руководителя)
органа по сертификации

Эксперт (эксперты)

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Б.Б. Серков

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СИСТЕМА ДОБРОВОЛЬНОЙ СЕРТИФИКАЦИИ ПРОДУКЦИИ
«РЕГИСТР ПОЖТЕСТ»



СЕРТИФИКАТ СООТВЕТСТВИЯ

№ ССРП-СЕ.ЛБ97.Н.00427

(номер сертификата соответствия)

ЗАЯВИТЕЛЬ Dafo Brand Ab.
Адрес: Box 683, 135 26 Tyreso, Stockholm, Sweden.
Телефон: +46 8 506 405 00, факс: +46 8 506 405 99.

ИЗГОТОВИТЕЛЬ Dafo Brand Ab.
Адрес: Box 683, 135 26 Tyreso, Stockholm, Sweden, производство по адресу: 163
53 Spånga, Lunda Industriområde, Fagerstagatan 58, Stockholm, Sweden
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ОРГАН ПО СЕРТИФИКАЦИИ **ФГБОУ ВО Академия ГПС МЧС России.**
Адрес: 129366, г. Москва, ул. Б. Галушкина, д. 4.
Телефон: +7 (495) 617-27-27 доб. 29-33. ОГРН: 1027739451684.
Аттестат рег. № RA.RU.11ПБ97 уполномочен 30.11.2010 г. Некоммерческим
партнерством Национальная академия наук пожарной безопасности (НАНПБ).

ПОДТВЕРЖДАЕТ, ЧТО ПРОДУКЦИЯ код ОК 005 (ОКП) 28.29.22.190 код ТН ВЭД России 8424 89 000 9

Установка пожаротушения для защиты транспортных средств Dafo Forrex в составе см. Приложение № 0000313, выпускаемая по технической документации изготовителя. Серийный выпуск.

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ НОРМАТИВНЫХ ДОКУМЕНТОВ
Техническое описание ТО-001-2017.

ПРОВЕДЕННЫЕ ИССЛЕДОВАНИЯ (ИСПЫТАНИЯ) И ИЗМЕРЕНИЯ, ДОКУМЕНТЫ,
ПОСЛУЖИВШИЕ ОСНОВАНИЕМ ДЛЯ ПОДТВЕРЖДЕНИЯ СООТВЕТСТВИЯ
Акт о результатах анализа состояния производства сертифицируемой продукции № 456РП-2017 от 31.05.2017 г (ОС Академия ГПС МЧС России № RA.RU.11ПБ97 от 01.07.2015 г.);
Протокол сертификационных испытаний № 245РП-2017 от 13.06.2017 г. (ИЛ ЛСИСТП Академии ГПС МЧС России № RA.RU.21ПЖ15 от 16.04.2015 г.)

СРОК ДЕЙСТВИЯ СЕРТИФИКАТА СООТВЕТСТВИЯ с 28.06.2017 по 27.06.2022



Руководитель (заместитель руководителя)
органа по сертификации

Эксперт (эксперты)

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РП № 0003175

СИСТЕМА ДОБРОВОЛЬНОЙ СЕРТИФИКАЦИИ ПРОДУКЦИИ
«РЕГИСТР ПОЖТЕСТ»



ПРИЛОЖЕНИЕ
К СЕРТИФИКАТУ СООТВЕТСТВИЯ № C-SE.ПБ97.Н.00427

Перечень продукции, на которую распространяется действие сертификата соответствия

Установка пожаротушения для защиты транспортных средств Dafo Forrex в составе:

- емкость с огнетушащим веществом, типа SV-K 5, SV-K 10, SV-K 15, SV-K 20, SV-K 25;
- баллон со сжатым газом (азот), типа N10A, N20A, N10B, N20B, LT5-R;
- сопла (насадки) DW2, DF140, DM8;
- водный раствор (вода с добавками) Forrex AB-50;
- запорно-пусковое устройство (с устройством ручного и/или электрического и/или пневматического пуска и предохранительной мембраной);
- устройство крепления для баллона со сжатым газом;
- соединительная арматура (фитинги, трубки из нержавеющей стали, шланг RIT);
- комплект электро-монтажный;
- световая, звуковая индикация;
- прибор приемно-контрольный пожарный и управления установками водяного пожаротушения модели CV-01 в модификациях ВК, СК, ВФ.
- извещатель пожарный тепловой линейный ИП-135-1-Н модели P/N55-3253-19

Руководитель (заместитель руководителя)
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РП № 0000313

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № С-СЕ.ПБ97.В.00783

(обязательная сертификация)

№ 0015024

Перечень продукции на которую распространяется действие сертификата соответствия

МУПТВ-5-Г-ВД в составе:

- емкость с огнетушащим веществом, типа SV-K 5;
 - баллон со сжатым газом (азот), типа N10A или N10B, LT5-R;
- сопла (насадки) DW2;
- водный раствор (вода с добавками) Forrex AB-50;
- запорно-пусковое устройство (с устройством ручного и/или электрического и/или пневматического пуска и предохранительной мембраной);
- устройство крепления для баллона со сжатым газом;
- соединительная арматура (фитинги, трубки из нержавеющей стали, шланг R1T);

МУПТВ-10-Г-ВД в составе:

- емкость с огнетушащим веществом, типа SV-K 10;
- баллон со сжатым газом (азот), типа N10A или N10B, LT5-R;
- сопла (насадки) DW2;
- водный раствор (вода с добавками) Forrex AB-50;
- запорно-пусковое устройство (с устройством ручного и/или электрического и/или пневматического пуска и предохранительной мембраной);
- устройство крепления для баллона со сжатым газом;
- соединительная арматура (фитинги, трубки из нержавеющей стали, шланг R1T);

МУПТВ-12,5-Г-ВД (в составе:

- емкость с огнетушащим веществом, типа SV-K 12,5;
- баллон со сжатым газом (азот), типа N10A или N10B, LT5-R;
- сопла (насадки) DW2;
- водный раствор (вода с добавками) Forrex AB-50;
- запорно-пусковое устройство (с устройством ручного и/или электрического и/или пневматического пуска и предохранительной мембраной);
- устройство крепления для баллона со сжатым газом;
- соединительная арматура (фитинги, трубки из нержавеющей стали, шланг R1T);

МУПТВ-15-Г-ВД в составе:

- емкость с огнетушащим веществом, типа SV-K 15;
- баллон со сжатым газом (азот), типа N10A или N10B, LT5-R;
- сопла (насадки) DW2;
- водный раствор (вода с добавками) Forrex AB-50;
- запорно-пусковое устройство (с устройством ручного и/или электрического и/или пневматического пуска и предохранительной мембраной);
- устройство крепления для баллона со сжатым газом;
- соединительная арматура (фитинги, трубки из нержавеющей стали, шланг R1T);



Руководитель (заместитель руководителя)
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Эксперт (эксперты)

Б.Б. Серков
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ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № С-СЕ.ПБ97.В.00783

(обязательная сертификация)

№ 0015025

Перечень продукции на которую распространяется действие сертификата соответствия

МУПТВ-20-Г-ВД в составе:

- емкость с огнетушащим веществом, типа SV-K 20;
- баллон со сжатым газом (азот), типа N20A или N20B, LT5-R;
- сопла (насадки) DW2;
- водный раствор (вода с добавками) Forrex AB-50;
- запорно-пусковое устройство (с устройством ручного и/или электрического и/или пневматического пуска и предохранительной мембраной);
- устройство крепления для баллона со сжатым газом;
- соединительная арматура (фитинги, трубки из нержавеющей стали, шланг RIT);

МУПТВ-25-Г-ВД в составе:


- емкость с огнетушащим веществом, типа SV-K 25;
- баллон со сжатым газом (азот), типа N20A или N20B, LT5-R;
- сопла (насадки) DW2;
- водный раствор (вода с добавками) Forrex AB-50;
- запорно-пусковое устройство (с устройством ручного и/или электрического и/или пневматического пуска и предохранительной мембраной);
- устройство крепления для баллона со сжатым газом;
- соединительная арматура (фитинги, трубки из нержавеющей стали, шланг RIT);




Руководитель (заместитель руководителя)
органа по сертификации

М.П.

Эксперт (эксперты)


ПОДПИСЬ


ПОДПИСЬ

Б.Б. Серков

инициалы, фамилия

А.М. Алешков

инициалы, фамилия



Test Certificate Number: 9513215582

Order Details:

(Related to certificate: 9413221540)

Name of orderer: Aero Flame – Fire Fighting Systems Ltd.
Address: 39 Mordey HaGetaot, Hadera 0038283
Order date: 11/23/2014
The sample was chosen by the test orderer’s representative

Product Description:

Model tested: Automatic Fire Extinguishing System for Buses
System type: DAFO Forrex Fire Suppression System SV-K
Manufacturer: DAFO
Country of manufacture: Sweden

Details of the Sample Attained:

The sample was tested on: 06/01/2015-11/15/2015
Sample attainer: The orderer’s representative
Location of sample attained: Aero Flame Ltd warehouse Industrial Park Emek Hefer

Nature of the Test:

A partial test of the extinguishing system in accordance with the requirements of the following sections:
Chapter B Section 2.1 User Instructions, 2.3.2 – Discharge Time (Low Pressure Extinguishing System),
2.3.3 - Extinguishing Agent Container (Low Pressure Extinguishing System), 2.5.3 - Extinguishing Agent
Container (pressure container of a High Pressure Extinguishing System), Chapter C – Environmental
Conditions Tests (for the first system – tests 1 and 2), (for the second system – tests 1-2-3), (for the third
system – test 1), Chapter D – Extinguishing Capability of the Extinguishing System of I.S. 6278 Part 2,
“Automatic Fire Extinguishing Systems in Bus Engine Compartments: Test Methods and their
Requirements”, dated July 2014.

This certificate contains 7 pages
and it should not be used but in
its entirety.

The test results in this document
refer solely to the item that was
tested.

Findings of the Test:

Conclusion: The system suits the requirements of Standard 6278 section 2, “Automatic Fire Extinguishing
Systems in Bus Engine Compartments: Test Methods and their Requirements” from July 2014. See the
test results hereinafter.
1. General
For the purpose of this test, an automatic system for fire extinguishing using wet chemicals for
buses, manufactured by DAFO, was installed by the representative of the test orderer. The
system’s type: SV-K – 12.5.
The tests were performed at the SP Laboratories site in Sweden on 12/2-4/105, test for fire
detection system in simulator engine at the site of M.A.H in Netanya on 09/07/2015 (in the presence
of the representative of the Standards Institution of Israel), at the laboratories of the Standards
Institution of Israel) and at E.C.I laboratory ((in the presence of the representative of the Standards
Institution of Israel) on 06/01/2015,07/09/2015,10/12/2015,11/15/2015..
Detailing of the results and the test methods appear in the report’s sequel.

Engineer Kashi Itzhak

Engineer Akiva Helman

Senior Engineer at the Fire Extinguishment and Water Systems Branch

Head of the Fire Extinguishment and Water Systems Branch

Signing Date: 11/16/2015

Signing Date: 11/16/2015

I.S. 6278

Automatic Fire Extinguishing Systems in Bus Engine Compartments

Part 2 – Test Methods and their Requirements

Chapter	Section	Expansion	Defects and Remarks that were Encountered	Suitability to the Standard	
Chapter B – Environmental Conditions Tests	2.1 Use Instructions	The presence of a Manual Handbook and technical specifications which include the contents in accordance with I.S. 6278 Part 1.	A user guide and specification has been submitted	Suitable	
	2.2 Command and Control System	2.2.1 Electromagnetic compatibility testing of the command and control system as detailed in regulation UNECE R10 and see Chapter B.	A test was made by Standards Institution of Israel, a certificate hasn't been submitted yet.	Suitable	
		2.2.2 Functional and performance testing of the command and control system as part of the extinguishing system as detailed in Chapters C and D.	According to the standards	Suitable	
	2.3 Low Pressure Water Extinguishing System				
		2.3.1 Extinguishing agent.	In accordance with the Standard's requirements.	Suitable	
		2.3.2 Discharge time.	See in certificate 9413221540	Suitable	
		2.3.3 Extinguishing agent's container.	See in certificate 9413221540	Suitable	
		2.3.4 Marking of the extinguishing agent's container	Completed in accordance with the requirements of I.S. 6278 Part 1.	Suitable	
		2.3.5 Dispersal system.	See detailing in the certificate's body in Section 2.	Suitable	
		2.3.6 Dispersal system's nozzles.	See detailing in the certificate's body in Section 2.	Suitable	
Chapter C – Tests and Environmental Conditions	Testing three extinguishing systems from the same assembly line in accordance with the environmental conditions detailed in the Standard's tables	For the first system: test number 3 can be performed instead of tests 1 and 2.			
		1. Testing resistance to extreme temperatures.	Test was made in ECI laboratory in presence of Standards Institution representative. A signed certificate hasn't been issued yet.	Suitable	
		2. Mechanical strength test.	Test was made in ECI laboratory in presence of Standards Institution representative. A signed certificate hasn't been issued yet. Test results of the extinguishing agent discharge test, see section 3.1.2	Suitable	
		3. Combined testing of mechanical strength and thermal strength.	Hasn't been tested.	Inapplicable	
		For the Second extinguishing system:			
		1. Testing resistance to foreign particles and water impermeability.	A test was made by the Standards Institution of Israel. See certificate 9514300457	Suitable	

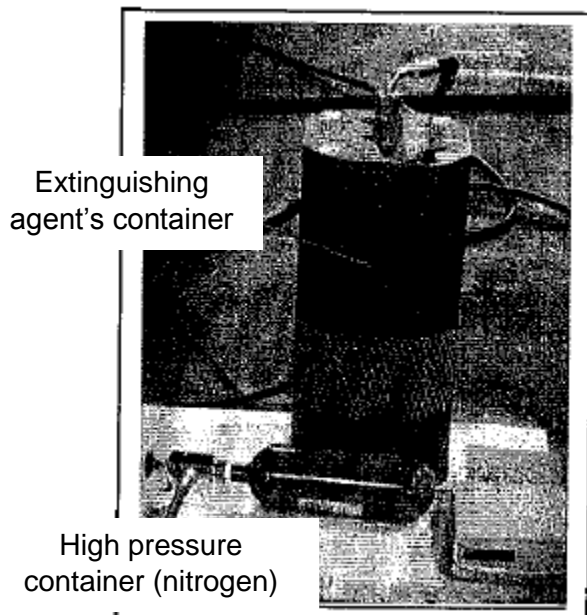
		2. Testing electrical work conditions and the extinguishing system's resistance to electric current flow and voltage impulses.	A test was performed in the presence of the representative of the Standards Institution of Israel in Qualitech ECI laboratory see certificate SII 220715.	Suitable	
		3. Electromagnetic compatibility test (EMC).	A test was performed by the Standards Institution of Israel. A signed certificate has been issued	Suitable	
		4. Testing immunity to false alerts.	For a flame detector.	Inapplicable	
		5. Performance testing of detectors in harsh work conditions.	For a flame detector.	Inapplicable	
		For the third extinguishing system:			
		1. Corrosion test.	A test was performed by the Standards Institution of Israel see certificates 8156659504. A surficial corrosion marks were found, after cleaning the area with a gentle steel wool, the corrosion marks were cleaned. No advanced corrosion. The test results of the discharging test of the Extinguishing agent, see section 3.1.1	Suitable	
Chapter D – Testing the Extinguishing Capability of the Extinguishing System - General.	4.2 The Trial's Kit		A test was performed by the Standards Institution of Israel see certificates 9413221540	Suitable	
	4.3 Fire Sources in the Trial		A test was performed by the Standards Institution of Israel see certificates 9413221540	Suitable	
	4.4 The Extinguishing System		A test was performed by the Standards Institution of Israel see certificates 9413221540	Suitable	
	4.5 Detailing of Scenarios		A test was performed by the Standards Institution of Israel see certificates 9413221540	Suitable	
	4.6 Detailing of Trials	4.6.1 Trial 1 – Extinguishing capability.		A test was performed by the Standards Institution of Israel see certificates 9413221540	Suitable
		4.6.2 Trial 2 – Detection.		See detailing in the certificate's body in Section 4.1	Suitable
		4.6.3 Trial 3 – Detection + automatic extinguishing.		See detailing in the certificate's body in Section 4.2.	Suitable
		4.6.4 Trial 4 – Discharge time.		See detailing in the certificate's body in Section 4.3.	Suitable
4.7 The Trial's Kit – Skeleton Simulating Engine Compartment			In accordance with the Standard's requirements.	Suitable	

2. Description of the Extinguishing System

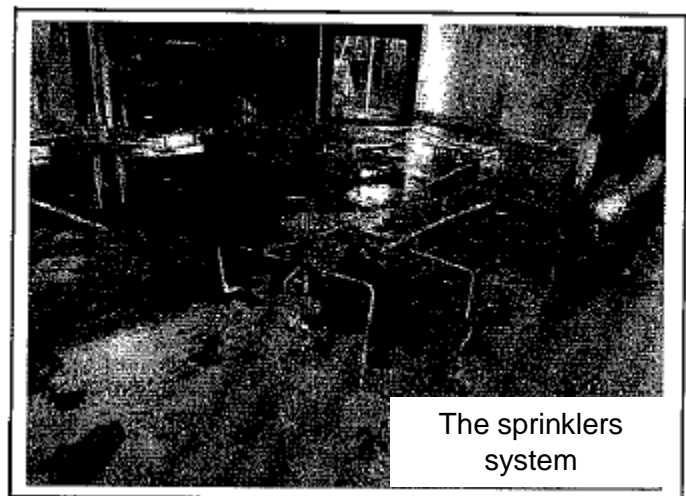
This system is a pre-engineered system.

The system's components:

- An extinguishing agent container (12.5, 15, 20, 25 liters, Forrex Agent Tank FFX).
- A nitrogen pressure container (Nitrogen Cartridge Type N20A).
- A control kit (Control Unit CB-02).
- The extinguishing agent Forrex AB50.
- A nitrogen pressure container (discharge gas). The container's pressure is 145 bars with a weight of 170g.
- Control system (Control Unit CB-02)
- A ½ flexible narrow hose for transferring the extinguishing agent, 5m long.
- Stainless steel hoses 12X1, 11.8m long.
- For 16 nozzles, the following can be installed: up to 13 L-connectors, 10 T-connectors and up to 3 X-connectors.
- For 15 nozzles, the following can be installed: up to 12 L-connectors, 13 T-connectors and up to 3 X-connectors.
- Nozzles for discharging the extinguishing agent (100° full cone, 1.61/min) DW-2. DAFO55-6153-14 (the quantity of nozzles being tested is 15, 16 according to the test)
- Red detection cable unit (Linear Detection Wire) for automatic detection and activation of the system.
- Automatic and manual control and activation case to be installed at the driver's cabin.



Picture no. 1 – The extinguishing system, pressure container and extinguishing agent container.



Picture no. 2 - The sprinklers system.

Chapter C – Environmental Tests

3. Results of the discharge test following the corrosion and mechanical strength test

3.1 A discharge test was carried out after the corrosion and mechanical strength test in accordance with the Standard's requirements in Chapter C regarding environmental tests for Test No. 2 for the first system (mechanical strength) and Test No. 1 for the third system (corrosion)

3.1.1 Following are the results of the test following the corrosion test:

12.5 liters system	----
Weight of a full extinguishing agent container (grams)	31980
Weight of an extinguishing agent container after discharge (grams)	18160
Weight of an empty extinguishing agent container (grams)	18160
Amount of extinguishing agent in the container (grams)	13820
Remaining extinguishing agent in the container (grams)	0
Weight of a full discharge gas container (grams)	2200
Weight of an empty discharge gas container (grams)	2020
Amount of discharge gas in the container (grams)	180
Discharge time (seconds)	10
Remarks	After 10 seconds all the extinguishing agent was discharged

The system ejected 100% of the extinguishing agent in less than 20 seconds.

3.1.2 Following are the results of the test following the mechanical strength test:

12.5 liters system	----
Weight of a full extinguishing agent container (grams)	32253
Weight of an extinguishing agent container after discharge (grams)	18253
Weight of an empty extinguishing agent container (grams)	18253
Amount of extinguishing agent in the container (grams)	14000
Remaining extinguishing agent in the container (grams)	0
Weight of a full discharge gas container (grams)	2710
Weight of an empty discharge gas container (grams)	2541
Amount of discharge gas in the container (grams)	169
Discharge time (seconds)	15
Remarks	After 15 seconds all the extinguishing agent was discharged

The system ejected 100% of the extinguishing agent in less than 20 seconds.

15 liters system	----
Weight of a full extinguishing agent container (grams)	36152
Weight of an extinguishing agent container after discharge (grams)	19602
Weight of an empty extinguishing agent container (grams)	19602
Amount of extinguishing agent in the container (grams)	16550
Remaining extinguishing agent in the container (grams)	0
Weight of a full discharge gas container (grams)	2721
Weight of an empty discharge gas container (grams)	2513
Amount of discharge gas in the container (grams)	208
Discharge time (seconds)	19
Remarks	After 19 seconds all the extinguishing agent was discharged

The system ejected 100% of the extinguishing agent in less than 20 seconds.

20 liters system	----
Weight of a full extinguishing agent container (grams)	45052
Weight of an extinguishing agent container after discharge (grams)	22902
Weight of an empty extinguishing agent container (grams)	22902
Amount of extinguishing agent in the container (grams)	22150
Remaining extinguishing agent in the container (grams)	0
Weight of a full discharge gas container (grams)	6994
Weight of an empty discharge gas container (grams)	6698
Amount of discharge gas in the container (grams)	296
Discharge time (seconds)	20
Remarks	After 20 seconds all the extinguishing agent was discharged

The system ejected 100% of the extinguishing agent in less than 20 seconds

Chapter D – Testing the Extinguishing Capability of the Extinguishing System

4. Trials

4.1 Trial No. 2 - Detection (Section 4.6.2 of I.S. 6278 Part 2)

4.1.1 General

Two detection trials were carried out.

The Detection System (detection cable) was installed at a height of approximately 18cm away from the fire sources.

Two fuel baths were ignited, one in object 2 and the other in object 3.

In both, the Detection System detected the fire 10 seconds after the ignition.

The Standard's requirements: maximum 10 seconds since the ignition.

4.1.2 Results of the detection tests

The system complied with the Standard's requirements in Trial No. 2 Section – Detection (4.6.2).

4.2 Trial No. 3 – Automatic Detection and Extinguishment (Section 4.6.3 of I.S. 6278 Part 2)

4.2.1 General

Two extinguishing trials were performed as detailed hereinafter:

Both trials were performed with 16 nozzles in accordance with the layout described in Section 3.5.5.2 aforementioned.

The trial process was performed as detailed in Section 4.6.3 (of I.S. 6278 Part 2):

- An extinguishing system and detectors were installed in accordance with Sections 3.5.5.2, 3.5.6.
- The engine's compartment was heated to a temperature of $(80\pm 5)^{\circ}\text{C}$.
- Ignition of the fuel baths.
- Activation of the diesel fuel diffusion nozzle 5 seconds after the baths' ignition.
- Fan activation immediately following the activation of the diesel fuel diffusion nozzle.
- The standard's requirements: the trial will be considered successful if detection occurred within 10 seconds of the baths' ignition, full extinguishment was achieved and there was no re-ignition within 5 minutes after the ignition.

In both trials, the Detection System identified and detected the fire 8 seconds after the ignition.

The Standard's requirements: maximum 10 seconds since the ignition.

The fire was extinguished and there was no re-ignition.

4.2.2 Results of the automatic detection and extinguishment tests

The system complied with the Standard's requirements in Trial No. 3 Section – Automatic Detection and Extinguishment (4.6.3).

4.3 Trial No. 4 – Discharge Time (Section 4.6.4 of I.S. 6278 Part 2)

4.3.1 General

The discharge time trial was performed as described in the Standard, with an extinguishing system as described in Section 3.5.5.2 aforementioned.

The trial process was performed as detailed in Section 4.6.4 (of I.S. 6278 Part 2).

4.3.2 Results of the Discharge Time Trial

12.5 liters system	----
Weight of a full extinguishing agent container (grams)	32420
Weight of an extinguishing agent container after discharge (grams)	18100
Weight of an empty extinguishing agent container (grams)	18100
Amount of extinguishing agent in the container (grams)	14320
Remaining extinguishing agent in the container (grams)	0
Weight of a full discharge gas container (grams)	1885
Weight of an empty discharge gas container (grams)	1725
Amount of discharge gas in the container (grams)	160
Discharge time (seconds)	13
Remarks	After 13 seconds all the extinguishing agent was discharged

The system ejected 100% of the extinguishing agent in less than 20 seconds.

The system complied with the Standard's requirements in Trial No. 4 Section – Discharge Time (4.6.4).



التاريخ : 2018 / 02 / 15

شهادة اختبار منتج

تشهد الإدارة العامة للدفاع المدني - دبي، بأنه قد تم اختبار منتج FORREX FIRE SUPPRESSION SYSTEM حسب المواصفات المبينة أدناه:

- الشركة المصنعة: DAFO
- بلد المنشأ: السويد
- رقم الموديل / المرجع: CV01-CK/CB02/AB-50
- وصف المنتج: نظام رغاوي لإطفاء المحركات.
- الشهادات المختبرية للمنتج: SP/SWEDEN

وقد أثبت المنتج فعاليته في إطفاء الحريق حسب الوصف.

هذه الشهادة هي اختبار للمنتج فقط وليست اعتماد للمنتج.

أعطيت هذه الشهادة بناءً على طلب الشركة دون تحمل الإدارة العامة للدفاع المدني - دبي أدنى مسؤولية تجاه الغير.

لجنة المواصفات الفنية التنفيذية



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DUBAI, UNITED ARAB EMIRATES



دولة الامارات العربية المتحدة
وزارة الداخلية
القيادة العامة للدفاع المدني
لجنة اعتماد المختبرات العالمية
وبيوت الخبرة ومعاهد التدريب

: Date

CERTIFICATE OF COMPLIANCE

This certificate of compliance validates the following		
TEST REPORT NUMBER 'Assessment Reports' are not acceptable	P-PRC-16-07-600275-378	CERTIFICATE NUMBER
DATE OF ISSUE	2016-07-20	DATE OF ISSUE
DATE OF EXPIRY		DATE OF EXPIRY
Manufacturer details		
NAME OF FACTORY/ MANUFACTURER	Dafo Brand AB	NAME OF THE BRAND
FACTORY ADDRESS / REGION (STREET / TOWN / CITY / COUNTRY)	Vindkraftsvägen 8 135 70 Stockholm Sweden	MODEL / NO
WEBSITE	Http://www.dafo.se	LOGO ON THE PRODUCT
TEL	+46 8 506 405 00	EMAIL

Product Details From Test Report	
DESCRIPTION OF THE PRODUCT <small>(TECHNICAL DETAILS FROM TEST REPORT, SUCH AS ACTUAL FIRE RATINGS/DIMENSIONS/THICKNESS/ SENSITIVITY ETC)</small>	Seamless steel gas cylinder
TEST STANDARD <small>(SUCH AS ASTM/BS EN/ DN ETC)</small>	EN1964-1:1999
TEST DESCRIPTION	-conf. EN 1966-1:1999 -see test report R-PR-C-16-07-600275-378
SPECIFICATION OF TEST SPECIMEN	-conf. EN 1964-1:1999
TEST RESULT <small>(SUCH AS PASSED CRITERIA___/ COMPLIED TO___/ DURATION___/OBSERVATION___/ETC)</small>	Corresponds to the Transportable Pressure Equipment Directive 2010/35/EU. Applied standard EN1964-1
PRODUCT APPLICATION GUIDELINE (END USE) <small>(CLEARLY STATE THE END USE WITH SPECIFIC APPLICATION, SUCH AS EXACT FIRE RATING/TO BE INSTALLED IN___/TO BE INSTALLED AT___/TO BE CONNECTED WITH___/TO BE INSTALLED WITH___ ETC ALONG WITH ANY WARNINGS SUCH AS NOT TO BE USED IN___/NOT TO BE INSTALLED AT___/ NOT TO BE INSTALLED WITH___ ETC.</small>	Seamless steel gas cylinder for compressed gases working pressure PW 144.8 Hydrostatic test pressure PH 217. 2 bar

Laboratory and Certification body details		
NAME OF CERTIFICATION BODY	TÜV SÜD Industrie Service GmbH	NAME OF TEST FACILITY
CERTIFICATION BODY ADDRESS / REGION <small>(STREET / TOWN / CITY / COUNTRY)</small>	Westenstr. 199, München	TEST FACILITY ADDRESS / REGION <small>(STREET / TOWN / CITY / COUNTRY)</small>
WEBSITE	www.tuev-sued.de	WEBSITE
TEL	+ 49 (0) 89 5791-0	TEL



t]

دولة الامارات العربية المتحدة
وزارة الداخلية
القيادة العامة للدفاع المدني
لجنة اعتماد المختبرات العالمية
وبيوت الخبرة ومعاهد التدريب

EMAIL	info@tuev-sued.de	EMAIL
ACCREDITED BY (NAME OF ACCREDITATION BODY WHICH ISSUED ACCREDITATION TO THE CERTIFICATION BODY, ALONG WITH WEBSITE)	DAkKS (Deutsche Akkreditierungsstelle)	ACCREDITED BY (NAME OF ACCREDITATION BODY WHICH ISSUED ACCREDITATION TO THE LABORATORY, ALONG WITH WEBSITE)
AS PER (STANDARD TO WHICH THE CERTIFICATION BODY IS ACCREDITED TO)	ISO IEC 17020:2013	AS PER (STANDARD TO WHICH YOUR ORGANIZATION IS ACCREDITED TO)
VALIDITY (EXPIRY DATE OF CERTIFICATION BODY ACCREDITATION)	14.04.2020	VALIDITY (EXPIRY DATE OF LABORATORY ACCREDITATION)
REFERENCE NUMBER: (CERTIFICATION BODY ACCREDITATION REFERENCE NUMBER TO VERIFY ON THE ACCREDITOR'S WEBSITE)	D-IS-14153-02-03	REFERENCE NUMBER: (THE LABORATORY ACCREDITATION REFERENCE NUMBER TO VERIFY ON THE ACCREDITOR'S WEBSITE)
CERTIFICATION MARK		

(ENDORSEMENT) TO BE SIGNED BY MANUFACTURER	
NAME OF MANUFACTURER'S SIGNATORY	ANDERS GULLIKSSON
EMAIL / TEL	anders.gulliksson@dafo.se
NOTES: I Undertake that all data and information provided are genuine and accurate	
	FACTORY OFFICIAL SEAL
	Dafo Brand AB

(ENDORSEMENT) TO BE SIGNED BY CERTIFICATION BODY	
NAME OF CERTIFICATION BODY SIGNATORY	Winfried Schock
EMAIL / TEL	winfried.schock@tuev-sued.de
NOTES: I Undertake that all data and information provided are genuine and accurate	
	CERTIFICATION BODY OFFICIAL SEAL
	TÜV SÜD Industrie Service GmbH Geschäftsfeld Anlagensicherheit Westendstr. 199 80686 München Tel. 089 5791-1891 Fax: 089 5791-1810

ATTACHMENTS:

22. DEZ. 2016

COPY OF 'CERTIFICATE OF COMPLIANCE' ISSUED BY CERTIFICATION BODY (OLD OR NEW)



Brandskyddsföreningen

Brandsäker kunskap

Postadress 115 87 Stockholm

Besöksadress Årstaängsvägen 21C

Tel 08-588 474 00

Fax 08-662 35 07

www.brandskyddsforeningen.se

Org.nr. 802000-4266

Intyg gällande brandsläckningssystem

Dafo Forrex brandsläcknings system uppfyller standarden
i enlighet med SBF127 för entreprenadmaskiner.

Stockholm 2014-09-10

Barbro Ahlén

Translation 2015-08-26:

Certificate of fire extinguishing systems

Dato FORREX fire extinguishing systems meet the standards in accordance with the SBF127 for construction equipment.

Björn Björkman

The Swedish Fire Protection Association, SFPA

bjorn.bjorkman@svbf.se

+46 8 588 475 17

www.brandskyddsforeningen.se

Fire suppression system for engine compartment

Issued to

Dafo Vehicle Fire Protection AB

Box 683, 135 26 Tyresö, Sweden

Product and product name

Fire suppression system, Dafo Forrex Fire Suppression System

Type

Water based fire suppression system
Suppression agent: Dafo Forrex AB-50

Technical data/Performance/Classification

See appendix to this certificate.

Certificate

The product described above fulfils the requirements in RISE Certification rules regarding Fire suppression systems in engine compartments of buses and coaches, SPCR 183 edition 2017-09-08. The certification is based on the manufacturer's technical file and type tests performed in accordance with standards specified in the appendix to this certificate.

Marking

Marking shall show SPCR 183, RISE logo, manufacturer's logo, the number of this certificate, the name of the product, its serial number, the name of the manufacturer and RISE P-symbol. See appendix for details.

Validity

This certificate is valid until not longer than 27th June 2024.

Miscellaneous

The manufacturer's in-house inspection is under surveillance by RISE in accordance with section 4 and 5 of SPCR 183. Other terms and conditions are set out in section 6 of SPCR 183.

Johan Åkesson

Martin Tillander

Certificate No. SC1061-13 | issue 2 | 2019-06-27

RISE Research Institutes of Sweden AB | Certification
Box 857, SE-501 15 Borås, Sweden
Phone: +46 10-516 50 00
certifiering@ri.se | www.ri.se



Product information

Technical data of the tested suppression system

Table 1 shows technical data of the suppression system tested for 4 m³ engine compartment volumes. The system may be scaled to fit the size of a specific engine compartment according to the scaling rules in SPCR 183.

Table 1, Technical data of the tested Dafo Forrex fire suppression system

Manufacturer	Dafo Vehicle Fire Protection AB
Fire suppression system name	Dafo Forrex
Extinguishing agent name	Dafo Forrex AB-50
Extinguishing agent type	Water based
Extinguishing agent mass	14,6 kg
Extinguishing agent container	SV-K 12,5
Extinguishing agent container article number	55-1651-12
Propellant gas	Nitrogen
Mass of propellant gas	198 g (±14 g)*
Pressure in propellant gas cartridge	145 bar (at +20°C)*
Propellant gas delivery hose	One ¼" hose with a length of 1 m
Extinguishing agent delivery hose	Two ½" hoses with a length of 3m and 3,5m
Extinguishing agent delivery pipes	Steel pipes with 10mm inner diameter
Type of nozzles	19 pcs. DW2 (100° full cone, 1.6l/min)* 1 pc. BETE FF125145 BSP (140° flat spray, 2.8l/min)* - nozzle 8 in figure 4 & 5.
Number of nozzles	20
Distance to the most remote nozzle	7,0 m
Total length of agent delivery system	11,0 m
Discharge time	Approximate 8 seconds of suppression agent discharge and additional time with nitrogen gas discharge
Number of fittings	2 pcs Straight fittings 8 pcs T-couplings 11 pcs Elbow fittings

* Information provided by manufacturer



Certificate No. SC1061-13 | issue 2 | 2019-06-27

RISE Research Institutes of Sweden AB | Certification

Performance - Tested fire scenarios according to SP Method 4912

A summary of the results can be found in Table 2. The test numbers refer to SP Method 4912. More information about the tests is shown in the test report.

Table 2, Results

Test	Air flow	Test scenario category	Results
1	0 m ³ /s	High fire load test Minimum operating temp. test T _{min} = -30 °C	Pass Pass
2	0 m ³ /s	Low fire load test	Pass*
3	0 m ³ /s	Hidden fire test	-
4	0.5 m ³ /s	Class A-fire test	Pass
5	1.5 m ³ /s	High fire load test	Pass
6	1.5 m ³ /s	Low fire load test	Pass*
7	1.5 m ³ /s	Hidden fire test	-
8	3 m ³ /s	High fire load test	-
9	3 m ³ /s	Low fire load test	Pass*
10	3 m ³ /s	Hidden fire test	-
11	0 m ³ /s	Hot surface re-ignition	00:47 min & 00:54 min

* Passed with an amount of agent reduced by 20% compared to the ordinary amount of agent.

Table 3, Rating according to SP Method 4912

Category	Category Rating
1 High fire load	2
2 Low fire load	3
3 Class A-fire	1
4 Hidden fire	0
5 Hot surface re-ignition protection	00:47 min
Total Rating	6

Component tests

In addition to fire tests components in the fire suppression system need to be verified and tested through international standards as specified below.

Table 4, results

Property	Standard	Result
Mechanical stress resistance (vibration and shock)	ISO 16750-3:2007 (Test VII)	Pass
Corrosion resistance	ISO 21207, test method B (3 cycles)	Pass



Certificate No. SC1061-13 | issue 2 | 2019-06-27

RISE Research Institutes of Sweden AB | Certification

Conditions

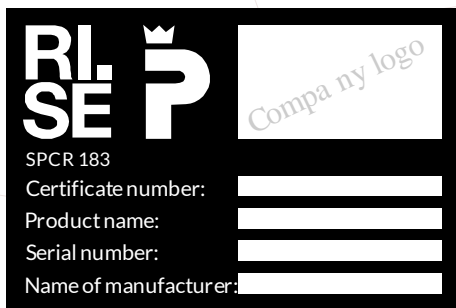
Electrical equipment included in the system shall have a classification of at least IP65, and tested in accordance with IEC 60529:1989/A1:2009/COR3:2009.

A risk assessment in accordance with SPCR 183 section 3.2 shall be made prior to equipment being placed into service. The risk assessment shall be made by personnel having documented experience for the task.

It is the responsibility of the suppression system manufacturer to assure compliance of its suppression system components with legal requirements and vehicle manufacturer requirements.

The marking of the product shall be legible and durable and be placed adjacent to the engine compartment and be designed as below. The size of the sign shall be 40 x 60 mm.

Marking plate template:



Certificate No. SC1061-13 | issue 2 | 2019-06-27

RISE Research Institutes of Sweden AB | Certification



Communication concerning approval granted of a type of a component with regard to Regulation No. 107

Approval No: 06002

Section I

1. Make:
(trade name of manufacturer) Dafo Brand AB
2. Type: Forrex SV-K Fire Suppression System
3. Means of identification of type, if marked on the component: Type name
- 3.1. Location of that marking: Label on unit
4. Name and address of manufacturer: Dafo Brand AB
P.O Box 683
SE 135 26 TYRESÖ
5. If applicable, name and address of manufacturer's representative:
6. Location and method of affixing of the type Approval mark: See item 3

Section II

1. Additional information (where applicable: See addendum
2. Technical service responsible for carrying out the tests: SP Technical Research Institute of Sweden
Box 857
SE-501 15 BORÅS
3. Date of test report: 2017-01-11
4. Number of test report: 6P08044
5. Remarks (if any): See addendum
6. Place: Borlänge
7. Date: 2017-01-20

Swedish Transport Agency

8. Signature:



Swedish Transport Agency

Lars Rask

9. The index to the information package lodged with the type approval authority, which may be obtained on request, is attached.

- Information document one page
- Test report: 6P08044 dated 2017-01-11

Addendum to type approval certificate No:06002
concerning the type approval of a fire suppression system as a component
with regard to Regulation No. 107

1. Additional information
 - 1.1. Extinguishing agent (make and type): Dafo Forrex AB-50
 - 1.2. Mass of extinguishing agent (required for a 4 m³ engine compartment): 12,5 litre/14,5 kg
 - 1.3. Type of discharge point(s) (e.g. type of nozzles):³ Dafo DW2, DF1, DM8 nozzles
 - 1.4. Number of discharge point(s) (required for a 4 m³ engine compartment):³ 10
 - 1.5. Length of discharge tube (required for a 4 m³ engine compartment),³ if applicable: 7,6 meter to most remote nozzle
 - 1.6. Type of propellant gas,³ if applicable: Nitrogen
 - 1.7. Pressure of propellant gas (needed in a 4 m³ engine compartment),³ in the case of systems under pressure: 145 bars
 - 1.8. Minimum operating temperature: -30° C
 - 1.9. Dimensions of pipes and fittings, if applicable: Stainless steel 12x1 mm

Certificate of Approval

This certificate confirms that the company below complies with the following standard(s):

Company Name	BFI Fire Pty Ltd	Client ID	103658
Company Other Name		Type of Certification	Product Certification; System 5
Certification Standard	AS 5062-2016 : Fire protection for mobile and transportable equipment		
Scheme	Global-Mark Product Conformance Scheme		
Certification Review Date	29/10/2018	Certification Expiry Date	29/10/2023
Certificate Issue Date	14/06/2019	Certificate Last Update Date	14/06/2019

APPROVED COMPANY/SITE ADDRESS(ES):
4 Channel Road Mayfield West NSW 2304 Australia

This certification remains valid until the above mentioned expiry date and subject to the organisation's continued compliance with the certification standard, and Global-Mark's Terms and Conditions. This Certificate of Approval remains the property of Global-Mark Pty Ltd, Company Number: ACN.108-087-654. The use of the Accreditation Mark indicates accreditation by the Joint Accreditation System of Australia and New Zealand in respect to those activities covered by JAS-ANZ accreditation. Refer to www.jas-anz.org/register for verification.



Certification Manager



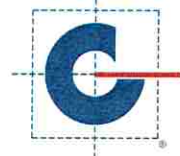
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Model Identification	Model Name	Brand Name	Product Description/Attributes	Date Approved
55-5130-51	55-5130-51	Dafo	Nozzle adaptor straight RIF	12/06/2019
55-6153-04	55-6153-04	Dafo	Nozzle type DW, complete	12/06/2019
55-6153-25	55-6153-25	Dafo	Nozzle adaptor 45B, G1/4" BS, for nozzle DW2	12/06/2019
55-5813-05	55-5813-05	Dafo	Hose 1/2", red marking, steel braided, 1SN-08	12/06/2019
55-5952-40	55-5952-40	Dafo	Hose coupling 1/2" straight UNF 3/4" JIC 12 mm (UUF)	12/06/2019
55-5952-50	55-5952-50	Dafo	Hose coupling 1/2" straight UNF 3/4" JIC 12 mm (UIR)	12/06/2019
55-5952-60	55-5952-60	Dafo	Hose coupling 1/2" elbow UNF 3/4" JIC 12 mm (UIR)	12/06/2019
55-5953-50	55-5953-50	Dafo	Hose coupling 1/2" straight UNF J 1.1/16"-12 (UIR)	12/06/2019
55-5953-60	55-5953-60	Dafo	Hose coupling 1/2" 90B UNF J 1.1/16"-12 (UIR)	12/06/2019
55-5938-05	55-5938-05	Dafo	Compression sleeve RT 1/2"	12/06/2019
55-5813-02	55-5813-02	Dafo	Hose 1/4", red marking, steel braided, SB	12/06/2019
55-5924-22	55-5924-22	Dafo	Hose coupling 1/4" straight G 1/4" (RIR)	12/06/2019
55-5926-22	55-5926-22	Dafo	Hose coupling 1/4"elbow G 1/4" (RIR)	12/06/2019
55-5938-02	55-5938-02	Dafo	Compression sleeve RT 1/4"	12/06/2019
55-0206-20	55-0206-20	Dafo	Check valve, brass, G 1/4"	12/06/2019
55-5400-11	55-5400-11	Dafo	Adaptor steel G1/4" (RUF-RUF)	12/06/2019
55-5412-26	55-5412-26	Dafo	Adaptor 90, 1/4" RIR to 1/4" RUF	12/06/2019
55-5413-22	55-5413-22	Dafo	Elbow adaptor fm, G1/4"-19	12/06/2019
55-5415-22	55-5415-22	Dafo	Bulkhead adaptor G1/4"	12/06/2019
55-5416-22	55-5416-22	Dafo	Tee adaptor G1/4"	12/06/2019
55-5416-23	55-5416-23	Dafo	Tee adaptor G1/4" with adjustable leg	12/06/2019
55-9006-50	55-9006-50	Dafo	Sign "Fuel cut off valve", 100x30mm	12/06/2019
55-9007-35	55-9007-35	Dafo	Sign "Main circuit breaker", 100x30mm	12/06/2019
55-9008-50	55-9008-50	Dafo	Sign "Fire alarm" 80x15mm	12/06/2019
55-9013-52	55-9013-52	Dafo	Sign "Extinguishing system release", 60x80mm	12/06/2019
55-9032-48	55-9032-48	Dafo	Sign "In case of fire", 60x80 mm	12/06/2019
55-9034-35	55-9034-35	Dafo	Sign "Engine stop" 30x100mm	12/06/2019
55-9101-00	55-9101-00	Dafo	Label "Before electric welding" 95x29mm	12/06/2019
55-9112-04	55-9112-04	Dafo	Label 60x15mm for linear detection wire, text, english	12/06/2019
55-9112-08	55-9112-08	Dafo	Label 60x15mm for linear detection wire, symbol	12/06/2019
55-9112-32	55-9112-32	Dafo	Label kit for bus system, english	12/06/2019
55-9112-56	55-9112-56	Dafo	Label kit for suppression system, english	12/06/2019
55-9112-75	55-9112-75	Dafo	Overlay 65x35 mm "Sounder"	12/06/2019
55-9112-76	55-9112-76	Dafo	Overlay 85x25 mm "External actuation"	12/06/2019
57-1050-25	57-1050-25	Dafo	Forrex AB-50 Extinguishing Agent	12/06/2019
20100406	20100406	Dafo	Installation Instruction Forrex Machines, 1:1/10-03-2016	12/06/2019



Certification Manager

Signature



global-mark®

Model Identification	Model Name	Brand Name	Product Description/Attributes	Date Approved
55-3219-26	55-3219-26	Dafo	Kit w. end resistance 5.6 kOhm	12/06/2019
55-3219-30	55-3219-30	Dafo	Kit, remote release circuit, incl 5,6 kOhm resistor	12/06/2019
55-3219-58	55-3219-58	Dafo	End circuit for 12V CB-02, complete	12/06/2019
55-3219-60	55-3219-60	Dafo	End circuit for 24V CB-02, complete	12/06/2019
55-4006-44	55-4006-44	Dafo	Cable M12 7500mm, code A, socket 4x0,5mm2, Shut-Off, White	12/06/2019
55-4006-46	55-4006-46	Dafo	Cable M12 7500mm, code A, 4x0,5mm2, Actuator, Green	12/06/2019
55-4006-48	55-4006-48	Dafo	Cable M12 7500mm, code D, 4x0,5mm2, Alarm, Yellow	12/06/2019
55-4006-81	55-4006-81	Dafo	Cable M12, code A, 8x0,25 mm2, Black, Alarm Panel, L= 1m	12/06/2019
55-4006-82	55-4006-82	Dafo	Cable M12, code A, 8x0,25 mm2, Black, Alarm Panel, L= 2m	12/06/2019
55-4006-83	55-4006-83	Dafo	Cable M12, code A, 8x0,25 mm2, Black, Alarm Panel, L= 3m	12/06/2019
55-4006-84	55-4006-84	Dafo	Cable M12, code A, 8x0,25 mm2, Black, Alarm Panel, L= 4m	12/06/2019
55-4006-85	55-4006-85	Dafo	Cable M12, code A, 8x0,25 mm2, Black, Alarm Panel, L= 5m	12/06/2019
55-4006-86	55-4006-86	Dafo	Cable M12, code A, 8x0,25 mm2, Black, Alarm Panel, L= 6m	12/06/2019
55-4006-89	55-4006-89	Dafo	Cable M12, code A, 8x0,25 mm2, Black, Alarm Panel, L= 10m	12/06/2019
55-4006-98	55-4006-98	Dafo	Y-adapter M12 Code A, 8-pole, Std	12/06/2019
55-3300-12	55-3300-12	Dafo	Alarm lamp 12V	12/06/2019
55-3300-24	55-3300-24	Dafo	Alarm lamp 24V	12/06/2019
55-0601-00	55-0601-00	Dafo	Bracket for alarm lamp	12/06/2019
55-3400-14	55-3400-14	Dafo	Alarm horn 12V	12/06/2019
55-3400-24	55-3400-24	Dafo	Alarm horn 24V	12/06/2019
55-3405-24	55-3405-24	Dafo	Electronic siren 12-24 VDC	12/06/2019
55-3505-01	55-3505-01	Dafo	Sounder Beacon Red, Deep Base, 24V	12/06/2019
55-3505-03	55-3505-03	Dafo	Sounder Beacon Red, Deep Base, 12V	12/06/2019
55-5001-12	55-5001-12	Dafo	Stainless steel pipe 12x1mm, 2m	12/06/2019
55-5601-12	55-5601-12	Dafo	Coupling straight JIC 12mm UNF 3/4"	12/06/2019
55-5603-12	55-5603-12	Dafo	Coupling elbow JIC 12mm UNF 3/4"	12/06/2019
55-5604-12	55-5604-12	Dafo	Coupling elbow JIC 12mm UNF 3/4", adjustable	12/06/2019
55-5605-12	55-5605-12	Dafo	T-coupling JIC 12mm UNF 3/4"	12/06/2019
55-5606-12	55-5606-12	Dafo	T-coupling JIC 12mm UNF 3/4", adjustable leg	12/06/2019
55-5607-12	55-5607-12	Dafo	T-coupling JIC 12mm UNF 3/4", adjustable arm	12/06/2019
55-5609-12	55-5609-12	Dafo	Coupling, bulkhead, straight, JIC 12mm UNF 3/4"	12/06/2019
55-5610-12	55-5610-12	Dafo	Coupling, bulkhead, elbow, JIC 12mm UNF 3/4"	12/06/2019
55-5611-12	55-5611-12	Dafo	Nut for JIC 12mm UNF 3/4"	12/06/2019
55-5612-12	55-5612-12	Dafo	Sleeve for JIC 12 mm	12/06/2019
55-5614-12	55-5614-12	Dafo	End plug JIC 12mm UNF 3/4"	12/06/2019



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Model(s) on which the Global-Mark logo may be applied by the certificate holder as a declaration of compliance by the certificate holder:

In placing the authorised mark on the product, the certificate holder makes a declaration of compliance with the certification standard(s) and confirms that the product is identical to the product certified herein. In issuing this Certificate of Approval Global-Mark has relied on the expertise of external bodies (laboratories, and technical experts).

Model Identification	Model Name	Brand Name	Product Description/Attributes	Date Approved
55-1651-05	55-1651-05	Dafo	Forrex container piston operated 5 litre, type SV-K 5	12/06/2019
55-1651-10	55-1651-10	Dafo	Forrex container piston operated 10 litre, type SV-K 10	12/06/2019
55-1651-12	55-1651-12	Dafo	Forrex container piston operated 12.5 litre, type SV-K 12	12/06/2019
55-1651-15	55-1651-15	Dafo	Forrex container piston operated 15 litre, type SV-K 15	12/06/2019
55-1651-20	55-1651-20	Dafo	Forrex container piston operated 20 litre, type SV-K 20	12/06/2019
55-1651-25	55-1651-25	Dafo	Forrex container piston operated 25 litre, type SV-K 25	12/06/2019
55-0693-00	55-0693-00	Dafo	Bracket for SV-K, angle	12/06/2019
55-0693-05	55-0693-05	Dafo	Bracket for SV-K, straight	12/06/2019
55-7095-10	55-7095-10	Dafo	Kit with screws and washers for bracket SV-K	12/06/2019
55-1320-10	55-1320-10	Dafo	Nitrogen cartridge N10B for SV-K 5L-15L	12/06/2019
55-1320-20	55-1320-20	Dafo	Nitrogen cartridge N20B for SV-K 20L-25L	12/06/2019
55-1002-00	55-1002-00	Dafo	Cartridge, Nitrogen, LT-5-R (Ansul)	12/06/2019
55-1325-20	55-1325-20	Dafo	Bracket for nitrogen cartridge type N10B	12/06/2019
55-1325-22	55-1325-22	Dafo	Bracket for Nitrogen cartridge type N20B	12/06/2019
55-1325-52	55-1325-52	Dafo	Clamp for N10B/N20B Nitrogen cartridge	12/06/2019
55-1001-15	55-1001-15	Dafo	Bracket for release mechanism, FX-K complete	12/06/2019
55-1312-10	55-1312-10	Dafo	Release mechanism FX-K, Mechanical/Pneumatic/Electric	12/06/2019
55-1314-10	55-1314-10	Dafo	Release mechanism FX-K, Mechanical	12/06/2019
55-1310-10	55-1310-10	Dafo	Release mechanism FX-K, Pneumatic/Electric	12/06/2019
55-3070-60	55-3070-60	Dafo	Control unit type CV-01/CK excel battery	12/06/2019
55-2445-08	55-2445-08	Dafo	Control unit type CB-02 Grey, 12V	12/06/2019
55-2445-10	55-2445-10	Dafo	Control unit type CB-02 Grey, 24V	12/06/2019
55-4020-42	55-4020-42	Dafo	Alarm panel CV-01 BK/CK, moulded (IP65), english TEXT	12/06/2019
55-4020-46	55-4020-46	Dafo	Alarm panel CV-01 BK/CK, moulded (IP65), SYMBOLS	12/06/2019
55-4020-55	55-4020-55	Dafo	Alarm panel CV-01 BK/CK, english TEXT	12/06/2019
55-0694-20	55-0694-20	Dafo	Bracket 90B for Alarm Panel CV-01	12/06/2019
55-4006-40	55-4006-40	Dafo	Cable M12 7500mm, code A, 4x0,5mm2, Power, Red	12/06/2019
55-4006-42	55-4006-42	Dafo	Cable M12 7500mm, code A, 4x0,5mm2, Detector, Blue	12/06/2019
55-3219-85	55-3219-85	Dafo	Splicing kit for linear detection wire, complete	12/06/2019
55-3253-19	55-3253-19	Dafo	Linear Detection Wire 180°C	12/06/2019
55-3219-18	55-3219-18	Dafo	Kit w. end resistance 1,8 kOhm	12/06/2019
55-4006-96	55-4006-96	Dafo	Y-connector M12 Code A, 4 pin, detector, blue	12/06/2019



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Model Identification	Model Name	Brand Name	Product Description/Attributes	Date Approved
141027	141027	Dafo	Installation Instruction Forrex Buses, 1:4/N/A	12/06/2019
55-9111-80	55-9111-80	Dafo	Dafo Forrex Fire Suppression Systems on Vehicles & Machines - Instructions for Use, N/A/18-09-2017	12/06/2019

Comments:

Compliance applies to Clause 6.3.3.4: Wet Chemical

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